## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A programmable packet-based network having plural nodes for providing services to network subscribers, the network comprising:

a service creation tool having an operator interface for programming a service definition package, the service definition package having one or more packet processing behaviors defined in a network programming language;

a service control center interfaced with the packet-based network and operable to accept the service definition package for deployment to predetermined network nodes; ~~and~~ said service control center comprising a software architecture for programming said network to provide a service, the architecture having a service layer, an execution layer and an infrastructure layer, wherein said service layer comprises service rules and a dataflow program and said execution layer comprises an expert system and a dataflow processor; and

at least one network node interfaced with the network, the node having a network processor, the node operable to perform the one or more packet processing behaviors translated from the network programming language.

2. (Original) The network of Claim 1 further comprising plural network nodes forming an internet service provider intranet, the packet processing behaviors establishing tunnels between the network nodes.

3. (Original) The network of Claim 1 wherein the service creation tool interface comprises a graphical user interface for defining services in the network programming language.

4. (Original) The network of Claim 1 further comprising a network processor abstraction layer associated with each network processor, the abstraction layer operable to translate the network programming language for execution on the associated network processor.

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) The network of Claim ~~7~~ 1 wherein the service further comprises an FPGA specification and the execution environment layer further ~~comprise~~ comprises an FPGA compiler.

9. (Currently Amended) The network of Claim ~~7~~ 1 wherein the service further comprises a network processor pattern tree and the execution environment layer further comprises a network processor compiler.

10. (Currently Amended) A method for programming nodes of a packet-based network, the method comprising:

defining a service in a programmable network language, the service having at least one packet processing behavior;

compiling the service as a service definition package;

installing the service definition package on a service control center, the service control center interfaced with the packet-based network, the service control center comprising a software architecture for programming said network to provide a service, the architecture having a service layer, an execution layer and an infrastructure layer, wherein the service layer comprises service rules and a dataflow program and the execution layer comprises an expert system and a dataflow processor;

instantiating the service as service objects deployed to one or more network nodes, the network nodes having one or more network processors operable to perform the packet processing behavior; and

translating the packet processing behavior from the service object for operation on the network processor.

11. (Original) The method of Claim 10 further comprising:

subscribing a network end user customer to the service through the service control center.

12. (Original) The method of Claim 11 wherein subscribing further comprises:

providing customer parameters from the service control center to the network node, the customer parameters represented as instance variables of customer instances.

13. (Original) The method of Claim 10 wherein defining the service further comprises:

selecting rules for the service from a graphical user interface; and

translating the selected rules into the programmable network language.

14. (Original) The method of Claim 13 wherein selecting further comprises:

dragging parameter windows from a library window to a service definition window.

15. (Original) The method of Claim 14 wherein the library window comprises plural tabs associated with types of packet processing behaviors, the tabs having parameter windows associated with parameters that define a packet processing behavior.

16. (Original) The method of Claim 15 wherein the tabs comprise a shape tab, a classify tab, a modify tab and a queue tab.

17. (Original) The method of Claim 10 wherein the packet processing behavior establishes a tunnel between a first and second network node.

18. (Original) The method of Claim 10 wherein defining the service further comprises defining a service layer, an execution layer and an infrastructure layer.

19. (Currently Amended) A ~~software architecture~~ system for providing a service on a packet-based network comprising:

a node comprising processing resources operable to execute software organized in an architecture for programming said network to provide a service, the architecture having a service layer, an execution layer and an infrastructure layer, wherein the service layer comprises service rules and a dataflow program and the execution layer comprises an expert system and a dataflow processor;

a service layer having instructions that identify packet processing behaviors for execution by predetermined execution elements of a network node;

an execution environment layer interfaced with the service layer, the execution environment layer representing the network node execution elements to execute instructions from the service layer; and

an infrastructure layer interfaced with the execution environment layer, the infrastructure layer providing management functions to support the network node execution elements.

20. (Original) The architecture of Claim 19 wherein the service layer comprises a set of rules and the execution environment layer comprises an expert system.

21. (Original) The architecture of Claim 19 wherein the service comprises a dataflow program and the execution environment layer comprises a dataflow processor.

22. (Original) The architecture of Claim 21 wherein the service comprises one or more packet processing behaviors specified by the dataflow program, the service further comprising an FPGA specification, and the execution environment layer further comprising an FPGA compiler.

23. (Original) The architecture of Claim 21 wherein the service comprises one or more packet processing behaviors specified by the dataflow program, the service further comprising a pattern tree for a network processor, and the execution environment layer further comprising a network processor compiler.

24. (Original) The architecture of Claim 19 having a reporting element, the execution environment further comprising a procedural abstraction of the reporting element.

25. (Withdrawn) A graphical user interface for programming network nodes of a packet-based network, the graphical user interface comprising:

a library window having plural tabs, each tab having one or more functions represented by windows adapted to identify one or more parameters associated with the

functions; and

a service window presented proximate to the library window, the service window adapted to present functions as elements of a service;

wherein the functions of the library window are further adapted for insertion in the service window to define a service.

26. (Withdrawn) The graphical user interface of Claim 25 wherein the library window tabs comprise a queue tab having a queue function window.

27. (Withdrawn) The graphical user interface of Claim 26 wherein the queue function window defines a queuing function for packets associated with a service as a parameter input into the queue function window.

28. (Withdrawn) The graphical user interface of Claim 27 wherein the queue function parameter comprises queuing on a best effort basis.

29. (Withdrawn) The graphical user interface of Claim 27 wherein the queue function parameter comprises queuing packets to have priority transmission across the network.

30. (Withdrawn) The graphical user interface of Claim 26 wherein the queue function window discards packets.

31. (Withdrawn) The graphical user interface of Claim 25 wherein the library window tabs comprise a classify tab having an IP address function window.

32. (Withdrawn) The graphical user interface of Claim 25 wherein the library window tabs comprise a modify tab having a function window that defines a packet modifying behavior.

33. (Withdrawn) The graphical user interface of Claim 25 wherein the library window tabs comprise a shape tab having a function window that defines a packet shaping behavior.